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they being best adapted to the purpose from several points of view—a number of both sexes would be secured; the most intelligent individuals of the most intelligent species being selected; probably that known as “French poodle.” They would be taught in classes in order to profit by ambition and example; and a judicious system of rewards and punishments adopted. The intelligent and healthy would be mated; the stupid or weakly would be discarded.

In each generation the standard of ability being raised as the circumstances justified, the law of adaptation would be brought to bear in conjunction with artificial selection.

Then the laws of heredity would be so followed as to render probable the production of exceptional individuals in the direction desired; thus profiting by the tendency to radical variation to secure a new variety of exceptional capabilities.

Is it not possible that inquiries into the operation of the lower orders of mind may suggest improvements in the training of the higher grades?—*Wm. B. Cooper.*

[NOTE BY THE EDITORS.—A valuable article on this subject appeared in the number of the *London Journal of Science*, corresponding to the number of the *NATURALIST* in which Mr. Cooper's article was published, viz. Jan. 1883. Mr. Cooper's present note expresses recommendations contained in the *Journal of Science* article, which, however, prefers parrots to dogs as the best animals for experiment.]

#### ANTHROPOLOGY.<sup>1</sup>

ETHNOLOGY OF THE VEGA.—All the world has read the story of the *Vega*, how the brave Nordenskjöld in the steamer *Vega*, setting sail from Tromsø, in Northern Norway, on the 21st July, 1878, explored the entire arctic coast of Europe and Asia, wintered for ten months in Kolyutschin bay, and returned by Behring strait and the Suez canal to the point of departure. It is not our province to dwell upon the brilliancy or the value to commerce and material science of this first circumnavigation of Europe and Asia. In the course of his journey Nordenskjöld was brought into close relationship with the inhabitants of the high north, and it is with this portion of his work that we have to do.

*Samoyeds* (Mongoloid division, Ural-Altaic stem, Samoyed branch. *Peschel*).—Of these people Nordenskjöld says: “The Samoyeds, living neighbors to several Finnish-Ugrian races (Lapps, Syrjäni, Ostjacks and Voguls) are believed by some writers to be closely allied to the Fins and Finnish races in general. The comparison of the languages, however, shows a very wide divergence, and the anatomical characters have not been sufficiently scrutinized.” These people were met with along the

coast of Northeastern Asia, from the southern extremity of Nova Zembla to the mouth of the Ob-Irtisch river, principally throughout the Yalmal or Samoyed peninsula. The relations of this branch to their neighbors and to their environment are described, as well as their dress and dwellings, their customs and modes of burial, their status in culture compared with that of other boreal races, and their place in ethnography assigned (pp. 60-83).

*The Chukches.*—In the whole stretch from Yugor Schar, south of Nova Zembla to Cape Chilagskoi the *Vega* party saw neither men nor human habitations. At the latter place (172° E.) they came suddenly upon the Chukches. "Every man, with the exception of the cook, rushed on deck. Their boats were of skin built in the same way as the 'umiaks,' or women's boats of the Eskimo." From this point to Konyam bay, south of Behring strait, they were constantly in the company of this race. On the 28th September the *Vega* was caught in the ice at the mouth of the Kolyutschin bay, and remained there until the 18th July following, when, decked with flags, she sailed again on the way to her destination. In this long and lonesome winter they had most abundant opportunities of getting acquainted with this race. The Chukches are divided sharply by their domestic animals into Dog-Chukches and Reindeer-Chukches. In point of rank in culture they stand between the Samoyeds and the Eskimo. Lieut. Nordquist drew up an extensive vocabulary of the language and a sketch of the grammar, but they are only briefly mentioned in the preliminary volume. So far as observed there seemed to be very little social organization beyond the family, no religious ceremony beside the customs in the presence of death, and no ownership excepting the personal property in dogs and reindeers and whatever else is connected with the house and the chase. In the minutest manner Professor Nordenskjöld describes their dress, houses, furniture, boats, sledges, ivory ornaments, fishing and hunting, hospitality, begging, trading, customs of marriage and burial; in fine, he has given us an exceedingly useful monograph of the people. The professor was not unmindful that he was in the presence of a civilization in many respects similar to that which once occupied the valley of the Dordogne, and improved his opportunities by observing those occupations which would explain some of the enigmas in the caves of France. The work is profusely illustrated with sketches of Chukch life and with drawings of their culture-objects.

Leaving the land of the Hyperboreans, the company of the *Vega* had a pleasant voyage home, making their stay at Japan, Borneo, Suez and other points sufficiently long to receive the merited applause of the people and to record some very interesting facts concerning the manners and customs of the localities.

Professor Nordenskjöld is at great pains to narrate the various attempts that have been made to explore the regions through

which he passed. The title of his preliminary volume is as follows: "The Voyage of the *Vega* round Asia and Europe, with a historical review of previous journeys along the north coast of the old world," by A. E. Nordenskjöld. Translated by Alexander Leslie, with five steel portraits, numerous maps and illustrations. New York, Macmillan & Co., 1882, pp. xxvi, 756, 8vo.

THE MANUSCRIPT TROANO.—Professor Cyrus Thomas has sent us the advanced sheets of a work bearing the following title: "A study of the Manuscript Troano," by Cyrus Thomas, Ph.D., with an introduction by D. G. Brinton, M.D. [From contributions to North American ethnology, Vol. vi.]. Washington, Government Printing Office, 1882, pp. 233, 4to, with 100 figures and xxxiv plates.

Dr. Brinton's introduction relates to graphic methods in general and the ancient Maya records in particular. He introduces Dr. Friedrich Müller's neat distinction of thought-writing and sound-writing. We have an ascending scale of pictures, pictographs, hieroglyphics, syllabic signs and alphabets proper. The Indians of the U. S. had only pictures; the Aztecs, picture-writing and, quite certainly, a true phonetic system; the Mayas had a hieroglyphic system known only to the priests and a few nobles, containing pictures, diagrams and phonetic signs. Dr. Brinton gives very useful sketches of the Dresden Codex, the Codex Pereseanus and the Codex Troano, and concludes his essay by a short history of the various efforts at interpretation.

Professor Thomas, after a preface, apologetic and historical, proceeds to elaborate with great minuteness what has been given to the readers of the NATURALIST and the members of the American Association in outline. As it is the purpose of this notice merely to call attention and not to criticise, the contents of the volume are given below:

The graphic system and records of the ancient Mayas: Introduction.—Descriptions by Spanish writers.—References from native sources.—The existing codices.—Efforts at interpretation.

Chapter I. The manuscript and its characters.

" II. The Maya calendar.

" III. Explanation of figures, &c., on the manuscript and the Dresden Codex.

" IV. Probable meaning of other figures.

" V. Figures, &c.; which can be classed as written characters.

" VI. The written characters in the manuscript.

" VII. Illustrations of the day columns.

" VIII. A discussion of dates.

" IX. Inscriptions on the Palenque tablet.

Appendix 1. Extract from Landa's "Relacion, &c."

" 2. Quotations from Señor Melgar.

" 3. Translation of Landa's description of festivals.

" 4. Mode of building houses, from Landa.

" 5. Manner of baptism in Yucatan. Landa.

It will be admitted by all who read this work that Dr. Thomas has made a solid contribution to knowledge.

ARCHÆOLOGICAL LECTURES.—Glancing over the Boston *Evening Transcript* for November 25th, our eyes were attracted to a column headed "Archæological Explorations in Ohio." If one should read on he would discover that: "The third lecture of the course complimentary to the subscribers to the exploring fund of the Peabody Museum, expended during the past summer, was given on Thursday last at the museum, by the curator, F. W. Putnam. The ancient cemetery, with its singular ash pits near Madisonville, Ohio, formed the subject of the lecture.

"The next lecture will be given on Thursday afternoon, Dec. 14, instead of Dec. 7, as formerly announced, and will be upon 'Fort Ancient,' which is the largest earthwork in the United States.

"These lectures are free to all interested, but cards of admission must be applied for."

Nothing would give the editor of this department more pleasure than to play Captain Cuttle for all the *archæologists*, *anthropo-biologists*, *comparative-psychologists*, *glossologists*, *ethnologists*, *technologists*, *sociologists* and *comparative-mythologists* of our country, in order to put intelligent students of anthropology on the track of the good things that are being accomplished and the good words that are being spoken with reference to the natural history of man.

OF THE MUSIC OF NORTH AMERICAN INDIANS we possess only an imperfect and scattering knowledge, for among the authors on the subject a small minority only could boast of any acquirements in theoretical music. Now a recent writer, Theodore Baker, has in 1880 examined personally the songs and tunes of several of our Indian tribes, and has brought to bear on these a fair knowledge of musical theory, obtaining thereby many curious results. From forty-two songs and tunes, obtained from representatives of at least twelve tribes, and appended to his publication: "Ueber die Musik der nordamerikanischen Wilden," Leipzig, 1882, 8vo, pp. 82, illustr., he feels justified to refute the common idea that Indian melodies cannot be expressed by our musical scales and notes (p. 22 sq.). A large majority of their tunes show a purely diatonic progress in their notes, and the gamuts or scales, in which they move, are comparatively few in number. The majority of the melodies examined seem to belong to the Lydian scale (c d e f g a h c') and to the Hypophrygian (g a h c' d' e' f' g'),<sup>1</sup> but in very few of them will be found *all* the seven notes of the diatonic scale. Every melody has the quint or fifth with its key note; one-half of them have the major third or diatone, while the flat or minor third occurs in a few only; the fourth and the sixth frequently occur, but the seventh note is rather scarce. Although the Indian uses all the

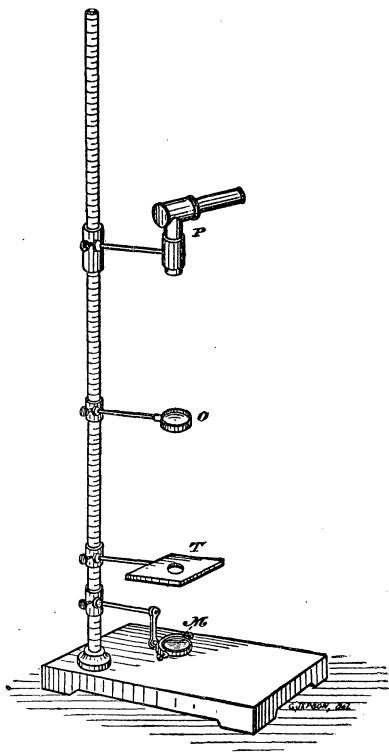
<sup>1</sup> Equivalent to our c sharp and g sharp gamut-scale.

seven notes of our musical scales, he avoids many of our melodial sequences; the majority of his tunes follow the *dur* or *sharp* scales and the two-eighth or two-fourth measure. The instruments accompanying Indian song are the flageolet, flute, pan-flute, whistle, and various kinds of tambourins, drums and kettle-drums. See Baker, Theodor: Ueber die Musik der nordamerikanischen Wilden, Leipzig, Verlag von Breitkopf und Härtel (Haertel), 1882, 8vo, pp. 82, 2 plates, of which one is colored.—*Albert S. Gatschet.*

#### MICROSCOPY.<sup>1</sup>

**DRAWING APPARATUS OF PROFESSOR HIS.**—In part first of his "Anatomie menschlicher Embryonen," pp. 8–9, Professor His has described a drawing apparatus altogether similar to the one here represented.

For anatomical and embryological work, an apparatus of this kind is simply indispensable. As every working naturalist knows, an apparatus that admits the use of the *camera lucida* with a low magnifying power, varying from five to forty diameters, offers many advantages that are not to be obtained from any system of microscopical objectives. In the absence of such an instrument, one is compelled to draw by measurement and "by the eye," a process which at best is slow and tedious, and liable to many inaccuracies. The foundation of every thorough embryological work consists, as Professor His remarks, *of exact drawings of the entire embryos as well as the sections obtained from them.* Any one acquainted with the embryometrical investigations of Professor His on the chick, will hardly require to be told that such surface views as he employed for orientation in microtomic sections, could not be obtained without the aid of photography, or the camera lucida, or by both. The instrument here described offers the same facilities for obtaining



His' Drawing Apparatus.

<sup>1</sup> Edited by Dr. C. O. WHITMAN, Newton Highlands, Mass.